The Influence of Mary Shelley's Frankenstein on Darwinian Evolution and Urey-Miller Abiogenesis in Opposing Biblical Creation

Douglas C. Youvan

doug@youvan.com

March 19, 2024

In "The Influence of Mary Shelley's Frankenstein on Darwinian Evolution and Urey-Miller Abiogenesis in Opposing Biblical Creation," we delve into the profound impact of Shelley's seminal work on the scientific and theological discourse concerning life's origins. Mary Shelley's "Frankenstein" prefigured themes central to Darwin's evolutionary theory and the Urey-Miller experiment's exploration of abiogenesis, challenging traditional biblical narratives of creation. This paper explores how Shelley's narrative, with its exploration of creating life from non-life, not only anticipated but arguably influenced the cultural receptivity to scientific theories that offer naturalistic explanations for the diversity and origin of life. Through a detailed examination, we uncover the dialogues these scientific theories have ignited within Christian apologetics, reflecting on the intersections of faith, science, and literature. "Frankenstein" emerges not just as a gothic tale but as a pivotal work bridging literary imagination with scientific inquiry, prompting a reevaluation of humanity's understanding of its own origins and the broader universe.

Keywords: Mary Shelley, Frankenstein, Darwinian Evolution, Urey-Miller Experiment, Abiogenesis, Biblical Creation, Science and Religion, Literary Influence, Scientific Discourse, Christian Apologetics, Naturalistic Explanations, Origin of Life, Ethical Implications, Interdisciplinary Dialogue.

Introduction

In the annals of literary and scientific history, few works have stirred the imagination and provoked intellectual discourse as profoundly as Mary Shelley's "Frankenstein; or, The Modern Prometheus." Conceived amidst the backdrop of the early 19th-century European Enlightenment—a period marked by remarkable scientific discovery and philosophical inquiry—Shelley's novel emerges as a cornerstone, challenging the zeitgeist and foreshadowing debates that would captivate the intellectual landscape for centuries. This paper aims to dissect the intricate web of influences exerted by "Frankenstein" on the development of scientific theories and experiments, particularly those concerning the origins of life and species diversity. These scientific ventures, notably Charles Darwin's theory of evolution by natural selection and the groundbreaking Urey-Miller experiment simulating early Earth conditions to produce organic compounds, represent significant departures from the narrative of biblical creation.

At its core, "Frankenstein" delves into the quintessential human quest for knowledge and the desire to unlock the mysteries of life, embodying an era's aspirations and anxieties regarding the potential and perils of scientific endeavor. The narrative of Victor Frankenstein's ambitious yet tragic foray into the creation of life serves not merely as a cautionary tale but as a prescient reflection on the ethical and philosophical quandaries that would accompany scientific advancements. It is within this framework that Shelley's masterpiece has inadvertently laid the groundwork for a cultural and intellectual milieu increasingly receptive to alternative explanations of life's origins, challenging the traditional biblical creation narrative.

The thesis of this paper posits that "Frankenstein" has played a dual role in the discourse surrounding life's origins and humanity's understanding of creation. First, as an inspirer of a cultural and intellectual climate that would embrace Darwinian evolution and the scientific pursuit of abiogenesis,

Shelley's work catalyzed a shift in perspective that allowed these theories to flourish. Second, as a narrative catalyst, "Frankenstein" provided a conceptual model for exploring the ethical dimensions of creation, predating and influencing the scientific explorations into the origins of life. These contributions, both direct and indirect, have not only enriched the dialogue between science and literature but have also posed profound challenges to traditional biblical creation narratives, urging a reevaluation of the relationship between divine creation, natural processes, and the role of human agency in the continuing quest to understand the origins of life and existence itself.

In exploring these themes, this paper seeks to elucidate the enduring influence of Mary Shelley's "Frankenstein" on the trajectory of scientific thought and its philosophical implications, highlighting the novel's role in shaping contemporary debates on the origins of life and the ethical responsibilities of those who seek to unravel its mysteries.

Mary Shelley's "Frankenstein”

Mary Shelley's "Frankenstein; or, The Modern Prometheus" was conceived in a unique confluence of historical, cultural, and personal circumstances that profoundly influenced its creation and themes. Written during the early 19th century, an era marked by the Enlightenment and the dawn of the Industrial Revolution, the novel was born out of an age characterized by a fervent belief in human progress through science and reason. This period witnessed groundbreaking advancements in various fields of science, including chemistry, biology, and physics, fueling debates about the potential and limits of human knowledge and power. In this context, Shelley's narrative emerges as a critical reflection on the burgeoning scientific ethos, exploring the deep philosophical questions surrounding life, creation, and the responsibility that comes with knowledge.

"Frankenstein" was conceived during the summer of 1816, known as the "Year Without a Summer," when Shelley, Percy Bysshe Shelley, Lord Byron, and others were confined indoors by the inclement weather at Lake Geneva. Amid discussions about science, galvanism, and the nature of life itself, Mary Shelley was inspired to write a story that not only captured the imagination but also delved into the ethical implications of scientific overreach. Her novel tells the story of Victor Frankenstein, a young scientist driven by an insatiable quest for knowledge, who succeeds in creating life only to be horrified by the result. The narrative unfolds as a tragic tale of ambition, guilt, and the consequences of defying the natural order.

Shelley's work is a profound meditation on the themes of creation, life, and the dangers inherent in the pursuit of forbidden knowledge. By endowing Victor Frankenstein with the power to create life, Shelley directly engages with and challenges the traditional narratives of creation, especially the Judeo-Christian understanding of God as the sole creator. The novel raises critical questions about the role and limits of human agency in the natural world, the ethical responsibilities of creators towards their creations, and the unforeseen consequences of tampering with nature's laws.

Furthermore, "Frankenstein" reflects the Romantic era's ambivalence towards the Enlightenment's rationalist and empirical approach to knowledge. Through Victor's tragic journey, Shelley critiques the Enlightenment's optimistic belief in the boundless potential of human reason and science to improve the human condition, suggesting instead that such endeavors can lead to hubris, alienation, and destruction if not tempered by ethical considerations and a respect for natural boundaries.

In encapsulating these themes, Mary Shelley's "Frankenstein" set a precedent for questioning the established narratives of creation and the ethical dimensions of scientific inquiry. The novel's exploration of the consequences of usurping the natural order resonated deeply with subsequent generations, influencing not only literary works but also scientific and philosophical thought. Its enduring legacy lies in its capacity to inspire reflection on the moral and existential dilemmas posed by human

ambition and the pursuit of knowledge, themes that continue to echo in contemporary debates about scientific advancements and their implications for society and the natural world.

Darwinian Evolution

When Charles Darwin published "On the Origin of Species" in 1859, the intellectual and cultural landscape was already primed for a seismic shift in understanding life's origins. The early 19th century, the era that gave birth to Mary Shelley's "Frankenstein," was marked by an intense curiosity about the natural world and a burgeoning skepticism toward traditional explanations of its complexity and diversity. Shelley's masterpiece, with its probing exploration of creation, life, and the potential hubris involved in human attempts to mimic divine creative powers, had laid the groundwork for challenging the static notions of life and existence that were widely accepted at the time.

Darwin's theory of evolution by natural selection emerged within a context that was increasingly questioning established dogmas and eager to understand the mechanisms underlying the natural world. His proposition—that species evolve over time through a process of natural selection, where those with advantageous traits are more likely to survive and reproduce—provided a scientific explanation for the diversity of life that did not require divine intervention. This theory not only revolutionized biology but also profoundly challenged the biblical creation story, which posited a fixed act of creation by a divine being.

Shelley's "Frankenstein" can be seen as an early cultural forerunner to Darwin's scientific revolution, as it engaged with ideas about life's manipulation and the consequences of encroaching upon domains traditionally ascribed to the divine. The novel's depiction of Victor Frankenstein's creation of life from non-life and the subsequent disaster resonated with the growing disillusionment with the notion that life and its

origins were beyond the realm of human understanding. In a sense, Shelley's narrative paved the way for a society more open to alternative explanations of life's complexity and the processes by which it changes over time.

Moreover, "Frankenstein" embodies the Romantic era's deep ambivalence about the rapid advancements in science and technology. This ambivalence mirrored the public's reaction to Darwin's theories, which were met with both fascination and horror, as they upended conventional views of humanity's place in the universe. Just as Victor Frankenstein's quest leads to unforeseen and tragic consequences, Darwin's theory implied a natural world in constant flux, driven by competition and survival rather than harmony and divine providence. This perspective forced a reconsideration of moral and ethical frameworks and challenged the anthropocentric view of the world.

In contributing to a cultural milieu that questioned the boundaries of life, creation, and humanity's understanding of its own origins, Shelley's "Frankenstein" arguably made the intellectual environment of the 19th century more receptive to Darwinian evolution. The novel and the theory of evolution by natural selection share a common thread in their challenge to the biblical creation narrative, proposing instead that the complexities of life and its myriad forms are the result of processes that can be observed, studied, and, to some extent, understood through the lens of science. Together, they represent pivotal moments in the shift away from supernatural explanations toward a view of life as a dynamic and evolving phenomenon, reshaping humanity's understanding of its origins, its place in the natural order, and the ethical implications of its quest for knowledge.

The Urey-Miller Experiment

The Urey-Miller experiment, conducted in 1953 by Stanley Miller under the supervision of Harold Urey, marks a seminal point in the scientific

exploration of life's origins. This groundbreaking experiment aimed to test the hypothesis that organic compounds—the building blocks of life—could be formed from inorganic precursors under conditions resembling those of the early Earth. By simulating the earth's primordial atmosphere and introducing electrical sparks to mimic lightning, Miller and Urey observed the formation of amino acids, essential components of proteins and crucial to life's biochemical processes. This experiment provided the first empirical evidence supporting the theory of abiogenesis, the process by which life arises naturally from non-living matter.

The thematic resonance between the Urey-Miller experiment and Mary Shelley's "Frankenstein" is striking. Both delve into fundamental questions about the origins of life and the boundary between the animate and inanimate. Shelley's narrative, centered around Victor Frankenstein's ambition to create life from non-life, prefigures the scientific quest to understand how life might have originated from the primordial soup of the early Earth. "Frankenstein" explores the profound implications of bridging this gap, highlighting the ethical and existential quandaries that accompany such a monumental achievement. Similarly, the Urey-Miller experiment, by demonstrating the possibility of life's building blocks forming under prebiotic conditions, invites reflection on the nature of life itself and humanity's place within the natural world.

The implications of the Urey-Miller experiment extend beyond the scientific community, posing a challenge to the biblical narrative of creation. By suggesting a naturalistic pathway for the emergence of life's basic components, the experiment offers support for a view of life's origins that does not require divine intervention. This perspective aligns with the shift towards naturalistic explanations of the universe that began with the Enlightenment and was further propelled by Darwin's theory of evolution by natural selection. The experiment's success lent empirical weight to the theoretical framework of abiogenesis, bolstering the argument that life on Earth emerged through a series of natural processes.

In a broader cultural context, the Urey-Miller experiment, much like "Frankenstein," can be seen as a manifestation of human curiosity and the desire to unravel the mysteries of existence. It reflects an enduring fascination with the question of where we come from and a relentless pursuit of knowledge that characterizes the human spirit. This quest, driven by a Shelley-inspired scientific curiosity, challenges traditional narratives and encourages a reevaluation of our understanding of life's beginnings.

Furthermore, the Urey-Miller experiment highlights the power and potential of scientific inquiry to illuminate the darkest corners of our origins. Just as Shelley's novel wrestles with the consequences of man's hubris and the pursuit of forbidden knowledge, the experiment prompts ethical considerations about the scope and limits of scientific exploration. It opens a dialogue between science and philosophy, between empirical evidence and ethical responsibility, echoing "Frankenstein"'s cautionary tale about the pursuit of knowledge without foresight or humility.

In sum, the Urey-Miller experiment represents a pivotal moment in the scientific narrative of life's origins, offering empirical support for a naturalistic understanding of how life might have begun on Earth. Influenced by a cultural and intellectual heritage that includes Shelley's "Frankenstein," this experiment challenges traditional creation narratives, inviting a deeper exploration of the natural world and our place within it. Through its implications and the questions it raises, the Urey-Miller experiment continues to resonate in the ongoing dialogue about the origins of life, the nature of existence, and the ethical dimensions of scientific discovery.

Opposing Biblical Creation

The intersection of literature and science has profoundly influenced modern understandings of existence and creation, particularly through the works of Mary Shelley, Charles Darwin, and the seminal Urey-Miller experiment. Each

of these contributions, in its own way, poses direct and indirect challenges to the biblical account of creation, sparking intense debates and requiring nuanced responses from Christian apologetics.

Shelley's Narrative Challenge

Mary Shelley's "Frankenstein" is more than a gothic tale of horror; it is a profound exploration of the themes of creation, life, and the hubris of playing God. Shelley's narrative challenges the biblical creation story by presenting a human character, Victor Frankenstein, who usurps the divine role to create life. This act of creation, however, leads not to glory but to tragedy, suggesting the peril inherent in humanity's attempt to transcend its natural limits. The novel questions the morality of human attempts to control the natural order, indirectly critiquing the notion of a singular, divine act of creation by proposing alternative, albeit fictional, means of bringing life into being.

Darwin's Theoretical Challenge

Charles Darwin's theory of evolution by natural selection presents a more direct challenge to the biblical account of creation. By positing that all species, including humans, have evolved over millions of years through natural processes, Darwin's theory contradicts the biblical narrative of God creating all life forms as they currently exist within a six-day period. This scientific explanation for the diversity of life on Earth challenges the traditional view of creation, prompting a reevaluation of humanity's place in the natural order and its relationship to the divine.

The Urey-Miller Experimental Challenge

The Urey-Miller experiment adds a practical dimension to the theoretical challenges posed by Darwin. By demonstrating that organic molecules essential for life could be synthesized from inorganic compounds under conditions thought to replicate the early Earth, the experiment provides empirical evidence supporting abiogenesis—the naturalistic origin of life. This finding challenges the biblical narrative by suggesting that life could

arise without divine intervention, through processes that can be understood, studied, and replicated in a laboratory setting.

Implications for Christian Apologetics

The challenges posed by Shelley's narrative, Darwin's theory, and the Urey-Miller experiment have profound implications for Christian apologetics, sparking a dialogue between faith and science that continues to this day. Apologists have responded in various ways, ranging from outright rejection of these scientific theories to attempts at reconciliation through theistic evolution, which posits that God used evolution as a tool for creation. Some have turned to allegorical or metaphorical interpretations of the Genesis creation narrative, suggesting that these biblical stories were never meant to be read as literal accounts of historical events but as theological truths about God's relationship with the world.

This interplay between faith, science, and literature highlights the complexity of the debate about the origins of life and the universe. It underscores the need for a nuanced understanding that respects both the empirical evidence provided by science and the spiritual and moral insights offered by religion. The conversation continues to evolve, with each side contributing to a richer, more profound understanding of the mystery of existence and the marvel of creation. The legacy of Shelley, Darwin, and the Urey-Miller experiment lies not just in the questions they raise about how life began, but in the dialogue they inspire—a dialogue that seeks to bridge the gap between the empirical and the divine, between what we can observe and what we believe.

Conclusion

In concluding, the influence of Mary Shelley's "Frankenstein" on the discourse surrounding life's origins and its relationship to subsequent scientific developments and theological debates is profound and

multifaceted. Shelley's narrative not only anticipated the challenges that Darwinian evolution and abiogenesis research would pose to traditional biblical creation narratives but also served as a catalyst for a broader dialogue on these topics within Christian apologetics and beyond. The novel's exploration of the creation of life from non-life, the ethical implications of such endeavors, and the consequences of usurping what many consider to be a divine prerogative, resonates with the fundamental questions raised by subsequent scientific inquiries into the origins and development of life on Earth.

Darwin's theory of evolution by natural selection and the empirical evidence provided by the Urey-Miller experiment offer direct challenges to the biblical account of creation, suggesting naturalistic mechanisms for the diversity of life and the emergence of living organisms from inorganic matter. These scientific perspectives, when viewed through the lens of "Frankenstein," underscore the novel's prescient engagement with questions about the nature of life, the limits of human understanding, and the responsibilities that come with profound scientific knowledge.

The resultant dialogue within Christian apologetics has been characterized by a diversity of responses, from efforts to discredit the scientific theories to more nuanced attempts to reconcile them with a theistic worldview. This discourse has enriched both religious and scientific communities, prompting deeper reflections on the meanings of faith, the scope of scientific inquiry, and the ways in which these domains intersect and inform each other.

The enduring significance of Shelley's "Frankenstein" lies in its ability to bridge literary and scientific explorations, illustrating the importance of interdisciplinary dialogue in navigating the complex intersections of faith, science, and literature. The novel serves as a reminder that the quest to understand life's origins and humanity's place in the cosmos is not solely the province of science or religion but is a deeply human endeavor that encompasses a wide range of intellectual and emotional responses.

As we continue to grapple with the ethical, philosophical, and theological implications of advances in biology, genetics, and astrobiology, "Frankenstein" remains a critical touchstone, encouraging us to reflect on the moral dimensions of our quest for knowledge and the need for humility, wisdom, and ethical consideration in our scientific and technological pursuits. The dialogue inspired by Shelley's work, Darwin's theory, and the Urey-Miller experiment demonstrates the ongoing relevance of engaging with these questions in an open, thoughtful manner, fostering a conversation that is as much about the future as it is about the past. In this way, "Frankenstein" and the discussions it has inspired contribute to a richer, more nuanced understanding of the world and our place within it, highlighting the enduring need for an interdisciplinary approach to the most profound questions of existence.